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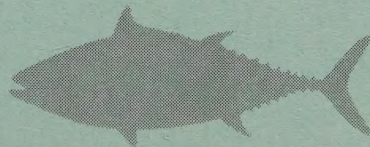
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1983 ECONOMIC STATUS REPORT on the CALIFORNIA COASTAL PELAGIC SPECIES FISHERIES

by

Svein Fougner

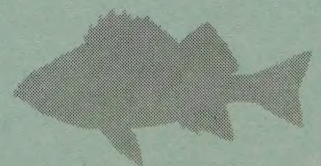


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JUNE 1984

ADMINISTRATIVE REPORT SWR-84-3



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1983 ECONOMIC STATUS REPORT
on the
CALIFORNIA COASTAL PELAGIC SPECIES FISHERIES

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National Marine Fisheries Service
Terminal Island, CA 90731

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Summary of Important Data

COMMERCIAL LANDINGS

- ° Total exvessel revenues - \$12.2 million - down 30 percent from 1982 and 25 percent below nominal 1978-82 average
- ° Total volume - 60,600 mt. - down 47 percent from 1982 and 44 percent below the 1978-82 average
- ° Mackerel was the only relatively strong segment of the fishery, accounting for almost 80 percent of the total exvessel revenue and 84 percent of total tonnage
- ° The nominal exvessel price per ton for mackerel and bonito dropped slightly from 1982 levels; average price per ton for anchovy and squid were higher reflecting higher valued uses with low landings
- ° Los Angeles/San Pedro and Monterey remained the leaders in volume and value of landings for southern and northern California areas respectively
- ° Sardine was encountered more frequently as an incidental catch species in the mackerel fishery, but landings continued to be limited under California regulations

PRODUCTS

- ° The nominal value of canned mackerel production was \$17 million, up about 15 percent from 1982
- ° The canned bonito pack increased sharply in value and volume
- ° There was no reported canned squid production in 1983
- ° Production and value of industrial products (meal, oil, solubles) decreased to their lowest point since 1966

OUTLOOK FOR 1984

- ° Status of stocks generally healthy, but distribution and vulnerability to harvest are variable; major changes in harvestable amounts not expected in 1984
- ° Return to more nearly normal ocean conditions may bring mackerel, anchovy and squid back to normal fishing areas; if so, smaller numbers of bonito and tunas might be available to southern California fisheries
- ° Harvesting costs probably will rise somewhat as fuel cost and interest rates rise; processors also face higher energy costs
- ° Markets for canned products appear stable, but strong dollar and import competition for U.S. tuna packers may affect their willingness and ability to maintain domestic packing operations

° Market for industrial products likely will continue to be soft in view of record menhaden landings (1.36 million mt.) in 1983; therefore, exvessel prices and product prices for anchovy are not likely to rise.

1982 ECONOMIC STATUS REPORT ON CALIFORNIA COASTAL PELAGIC FISHERIES

I. Overview

The species in the California coastal pelagic fisheries are Pacific mackerel, jack mackerel, northern anchovy, Pacific bonito, and squid. Occasionally there are high catches of bluefin or other tuna and incidental catches of sardines. Combined commercial landings of the target species in 1983 were 60,600 metric tons (mt.) (excluding tunas) with an exvessel value of \$12.2 million. Landings and nominal value were down from the 1982 levels of 113,700 mt. (47 percent) and \$17.5 million (30 percent) respectively. The total exvessel value of 1983 landings was 25 percent below the 1978-82 average, and total tonnage of landings was 44 percent lower. Discounted for inflation (1972 base), the total exvessel value in 1983 was almost 32 percent less than in 1982 and 37 percent below the 1978-82 average, primarily because of the virtual disappearance of anchovy and squid.

The recreational fishery comprises bait fishing for anchovy and squid for live and frozen bait and rod-and-reel fishing for mackerels and bonito. The estimated bait fishery catch was 5,800 mt. of live and frozen bait. Bait availability and catch were substantially better than in 1982. Accurate records of total baitfish landings in the 1978-82 period are not available, but the live bait catch is estimated to have averaged 5,400 mt. per year. The exvessel value of live bait is estimated to be \$450 per mt., so total exvessel has been about \$2.4 million per year. Anchovy is the dominant species, with small amounts of squid, mackerel and croaker also taken. Sardines also are taken frequently and may make up 10-15 percent of catch in some areas or months.

The effort (number of trips) and catch by recreational fishermen on commercial passenger-carrying fishing boats (CPFB) and private boats in southern California in 1983 are not known. There is no information to suggest any significant shifts in private boat, pier or shoreline fishing in 1983. Bonito and mackerel are among the most frequently caught species for anglers.

Harvests of northern anchovy are made under Federal regulations which implement a fishery management plan prepared by the Pacific Fishery Management Council. The State of California has management authority for other species landed in the coastal pelagic species fishery.

II. Components of the Fishery

A. Species and Status of Stocks

The principal target species of the California coastal pelagic fisheries are Pacific and jack mackerel, northern anchovy, squid, and Pacific bonito. Sardines are taken as an incidental catch in the mackerel fishery. Several tuna species (yellowfin, skipjack, bluefin, and bigeye) are taken in varying quantities depending on whether their migratory routes bring them within range of small purse seiners working out of San Pedro or San Diego. A few San Pedro-based vessels make more distant trips to fish for tuna, usually no farther than off Mexico.

There is no evidence that the principal target species are overfished, but catches vary considerably each year due to stock fluctuations or environmental changes. Pacific mackerel stocks have rebounded from the low levels that prompted the moratorium on commercial harvests in the 1970's, and have been the mainstay of the fishery the past couple of years. There is some concern because recruitment of 1982 year class mackerel was relatively poor in 1984, but a year class failure cannot yet be proven with available data. Anchovy stocks are at moderate levels and could probably sustain larger harvests than have occurred in recent years. Warm water conditions associated with El Nino may have driven anchovy schools offshore and into cooler water in 1982 and 1983. The status of squid stocks is uncertain, however, squid were generally absent from coastal California waters in 1983, probably due to warm water conditions. It is unknown if squid will return in 1984, but there is no reason to believe the stock has been overfished or adversely affected by oceanic changes. Pacific bonito catches have been at somewhat depressed levels recently, but the stock does not appear to be overfished off California. Restrictive size limits established in 1982 may account for reduced catches in 1983. The warm water conditions of 1982-83 apparently stimulated increased migration of bonito and high seas tuna into coastal waters and the fishery conservation zone off California.

B. User Groups and Associated Industries

The principal components of the fleets in the coastal pelagic species fisheries are as follows:

1. Southern California purse seiners - this sector has traditionally accounted for 70 percent or more of the total commercial harvest in value and tonnage of coastal pelagic species. The fleet consists of 35-45 vessels that harvest Pacific and jack mackerel and bonito, and occasionally tuna, for canning and fresh fish markets; and squid and anchovy for human consumption and bait.
2. Southern California dip net vessels - this sector consists of 40-65 vessels that normally fish seasonally for squid for canning and fresh fish markets.
3. Southern California live bait vessels - this sector has 12-14 vessels using lampara nets and drum seines to catch anchovy and occasionally squid for bait for recreational fishing.
4. Northern California lampara net vessels - this sector includes 30-35 vessels using lampara nets to catch squid, anchovy and mackerel in ocean waters and bays. Several vessels also participate in the San Francisco Bay herring fishery, and some reportedly fish for salmon in Bristol Bay, Alaska.
5. Gillnet and handline vessels - this is a fleet of small vessels which catch a wide variety of fish, including small amounts of mackerel and bonito, for fresh fish markets; the total catch by this fleet is probably small but appears to be growing.
6. Recreational fishing - there are more than one million marine anglers in southern California who fish for coastal pelagic species (especially mackerel and bonito) and who rely on such species as anchovy for bait.

The primary purchasers of coastal pelagic species landings are canneries which pack mackerel and squid as well as tuna for human consumption and petfood; reduction processors and canners which produce fish meal, oil and solubles; and fresh fish wholesalers and retailers.

C. Area of Fishery

Most fishing normally occurs within 20 miles of shore and around islands. In 1982 and 1983, unusually warm coastal waters resulted in a shift of effort, primarily to the north and farther offshore to find harvestable concentrations of fish. Purse seining is restricted or prohibited in some areas to prevent gear conflicts. Bait fishing is normally conducted quite close to shore where small schools of anchovy can be surrounded by lampara nets. San Diego and Long Beach vessels account for the bulk of bait catches. Squid fishing has been concentrated in Monterey Bay and around Santa Catalina and the Santa Barbara Channel Islands.

D. Management Regime

Most fishing for coastal pelagic species is regulated by the State of California, with seasons, area and gear restrictions, and size limits and quotas for some species. The State's controls on harvest of anchovy complement a fishery management plan (FMP) which sets reduction fishery quotas (212,950 mt. in 1982-83 and 104,800 mt. for 1983-84) based on annual estimates of spawning biomass. A portion of the reduction quota is reserved for the reduction fishery north of Pt. Buchon. State and FMP management includes designation of several areas in which fishing for reduction purposes is prohibited; and prohibition of reduction fishing in certain months (February 1 - March 31, all areas; July 1 - September 15, south of Pt. Buchon; July 1 - August 31, north of Pt. Buchon).

The State controls mackerel fishing with an annual quota (26,300 mt. in 1982-83 and 23,600 mt. for 1983-84) for Pacific mackerel, with incidental catch limits once the quota is reached. The Pacific mackerel quota is reviewed during the year to determine if stock conditions warrant an increase. There are only a few small areas in which seining for mackerel is prohibited. The first 227 mt. of Pacific sardine taken incidental to mackerel may be landed for any purpose; beyond that level, sardines may be landed only for canning, reduction and live bait.

The principal restrictions on fishing for bonito are a minimum size limit of 24 inches or five pounds for commercial fishing (with an 18 percent tolerance for a load taken by round haul nets, or a 1,000 pound tolerance for a load taken by gillnet or trawl); and a minimum size of 24 inches for sport fishing, with a 10-fish bag limit, although five fish smaller than 24 inches may be retained.

There are no regulations to limit squid fishing.

III. Commercial Harvesting Sector

A. Southern California (Los Angeles/San Pedro, San Diego, and Santa Barbara/Oxnard) Commercial Fleets

The southern California purse seine fleet in most years accounts for 70 percent or more of California's coastal pelagic species commercial harvest and value. More than 90 percent of mackerel and anchovy landings are made in southern California, and about 90 percent of these landings are made by the purse seine fleet. The estimated gross revenue of purse seiners from coastal pelagic species was \$8.4 million, or \$210,000 per vessel (assuming 40 vessels) in 1983, about 20 percent less than in 1982. Tonnage and value of bonito landings increased by about 46 percent and 26 percent respectively.

Total mackerel landings were 45,200 mt. valued at \$8.9 million, down about 12 percent and 14 percent respectively from 1982. Squid landings fell drastically to about 860 mt. (from almost 5,700 mt.) valued at \$330,000 (down from almost \$730,000). Anchovy landings fell to about 3,650 mt. (down more than 90 percent) valued at less than \$275,000 (down 85 percent). Total revenue from tunas (bluefin, skipjack, yellowfin) and other catches is estimated to have increased 30 percent to \$1.5 million.

Available information indicates that one vessel entered the southern California purse seine fleet in 1982, while one vessel sank. Total vessel employment appears to have been stable.

The majority of squid landings in southern California are made by dip net vessels. Participation depends on the availability of squid and market demand. Landings of squid in southern California fell 85 percent in 1983, while estimated exvessel value of almost \$330,000 was 55 percent less than the 1978-82 average. There is no documentation of a change in the dip net fleet in 1983.

The live bait fishery consists of 12-14 vessels, with little change from year to year. Fishing usually occurs within a mile or two of shore, with no single area being dominant. About 90 percent of the catch is anchovies, but the incidental catch of sardines for bait has increased in recent years. Squid are an important component for recreational fishing for calico bass, halibut, and yellowtail off southern California. There were fewer problems finding bait schools in 1983 than in 1982, but detailed catch, value, effort and area of catch data are not available. Live bait landings and value are estimated to have been about 5,800 mt. valued at \$2.6 million. Live bait is estimated to have an exvessel price of \$450 per mt. There has been new entry into the bait fleet in recent years as well as upgrading of vessels and equipment by established operators.

Several newspaper articles in the past year indicated that the San Pedro purse seine fleet is under severe economic pressure due to decreased landings, low exvessel prices, and increased fuel costs and insurance rates. This generalization may be accurate for the majority of vessels, especially those which changed hands in recent years. The new owners would be facing high interest rates and could be having difficulty making payments. On the other hand, many older vessels are fully paid for, so interest and depreciation costs may be nominal, and an owner of such a vessel may be making a profit.

This does not appear to be a fishery which will attract significant new entry in the next couple of years, and there has been little net change in the past three years. Unless there is a marked improvement in exvessel prices and product volume, the fleet overall can be expected to remain under economic strain with little change in fleet structure.

B. Northern and Central California (Eureka, San Francisco, Monterey) Commercial Fleet

Total landings of coastal pelagic species in Northern California in 1983 were 7,488 mt. valued at \$1.4 million, were down by about 52 and 59 percent respectively from 1982 levels. Monterey accounted for more than 75 percent of the exvessel value of landings in northern California.

There are 30-35 lampara seine vessels which fish primarily for squid and secondarily for anchovy and mackerel. The 1983 squid harvest was less than 500 mt. with an exvessel value of \$221,000, down more than 90 percent from 1982 levels. The exvessel price increased sharply but not nearly enough to offset reduced landings. Squid landings accounted for only 7.4 percent of the tonnage and 21 percent of the exvessel value of coastal pelagic fishery landings in Monterey; in 1982, the figures were 70 percent and 97 percent respectively. Some lampara vessels also participate in the San Francisco Bay herring roe fishery or Bristol Bay salmon fishery, and some harvest rockfish with gillnets. Income from these fisheries cannot be estimated with available data. Mackerel landings and value were 5,790 mt. and \$761,100 in 1983, up 300 percent and 250 percent respectively from 1982. Increased mackerel revenue was not sufficient to compensate for declines in anchovy and squid landings.

Available information indicates that there was no change in the size and capacity of the Monterey fleet in 1982.

Conditions for the northern California fleet are not expected to change substantially in 1984. Squid will likely return to being the primary target species in tonnage and value, with mackerel second in value, and possibly in tonnage, if anchovy are hard to locate and harvest. There is no reason to expect significant changes in size or composition of the northern California fleet and associated employment.

IV. Recreational Harvest Sector

Very little information is available on recreational fishing for coastal pelagic species in 1983. However, a report prepared for the National Coalition for Marine Conservation-Pacific Region, under a grant from the National Marine Fisheries Service, describes some of the economic and social values ascribed to recreational fishing in southern California based on 1980 and 1981 data. Data sources include the NMFS Marine Recreational Fisheries Statistics Survey (MRFSS) and the U.S. Fish and Wildlife Service's "1980 Survey of Fishing, Hunting, and Wildlife-Associated Recreation." It is estimated that California residents made 1.7 million marine angling trips, and non-residents made .3 million trips in 1981. Pacific mackerel (9.8 million fish) and bonito (3.3 million fish) were among the most frequently caught species and made up 30 percent of total catch. The average expenditure per trip was almost \$25. About 17 percent of total trips were on commercial

passenger and charter recreational vessels; average expenditure for such trips was \$48. The estimated revenue from sales of live and frozen bait was \$22.5 million. The value of and economic activity associated with marine recreational fishing cannot be attributed solely to southern California coastal pelagic species, but it is reasonable to conclude that the availability of these species is a primary contributor to the total value. While data are not available on 1983 catch, effort, and expenditures, preliminary evidence is that warm water conditions resulted in higher than normal catches of bonito, yellowtail, and pelagic game species. There is no indication that activity decreased in 1983.

V. Processing Sector

There are several processor types which buy California coastal pelagic species. Most mackerel landings are canned for human consumption and pet food, with relatively small amounts sold through fresh fish markets. Anchovy are reduced for industrial products (oil, meal, solubles) for poultry feed, with minor amounts going into fresh fish for human consumption, canned anchovy and anchovy paste. Bonito and squid are canned or sold in fresh or frozen fish markets. Offal from canning operations is processed to meal and oil. A mix of mackerel, tuna, and other species is used in pet food.

Five packing plants account for virtually all canned and processed products (excluding squid) in most years. The estimated total pack of mackerel in 1983 was 1,026,493 cases (1 lb. talls) with estimated value of almost \$17 million. Production was up 17.8 percent in volume and 13.9 percent in value from 1982, and the nominal value was more than 50 percent above the 1978-82 average. Approximately 85 percent of 1983 mackerel landings were purchased by canners. The amount and total value of canned bonito rose in 1983, but this did not bring the value of the pack up to the average 1978-82 level. The bonito pack fluctuates considerably.

Domestic canning firms are facing financial difficulty, and to some extent, the future of the coastal pelagic species fishery (excluding squid) may be hostage to the ability of tuna packers to remain in operation at Terminal Island. That is, processing non-tuna species for human consumption, pet food and industrial products may be economically profitable when the capital cost of a canner is shared among all species; but if tuna canning ceases, processors may not be able to shift all costs over to non-tuna species at current product prices. A petition has been filed with the International Trade Commission for tariff relief to prevent further loss of tuna market share to imports. The outcome of the petition is uncertain at this time. It appears likely, however, that processors will face continued economic difficulty in the short-term.

VI. Markets

The primary markets of the commercial fishery are domestic and export markets for canned fish for human consumption and pet food, industrial fish products, and fresh and frozen products.

Canned fish markets appear to be relatively stable but highly competitive. Mackerel from California compete with mackerel from other areas and perhaps with tuna from California. The tuna market has been relatively

depressed due to high levels of imported canned tuna, but the impact on mackerel product prices is unknown. The strong U.S. dollar has reduced U.S. canned mackerel competitiveness on world markets. Data are not yet available on 1983 domestic and export sales of canned mackerel. The canned bonito market appears to have absorbed 1983 production.

Industrial products (meal, oil, and solubles) are generally consumed in local and regional markets. The demand for these products is affected strongly by alternative domestic fish and agricultural products. Menhaden products from the southeast and domestic soybean meal and oil are to a considerable extent substitutes for anchovy and mackerel products, and prices of these substitutes influence prices of California products. Record landings of menhaden in 1983 on top of the previous record in 1982 may be responsible for the continued low prices for anchovy products. It appears unlikely that there will be a substantial increase in markets for local industrial products given the high production levels of menhaden and soybeans.

Fresh fish markets have generally been the most healthy. Bonito and mackerel are not as popular as many other species, but provide a moderately priced fresh fish product. The volume going through fresh markets apparently is growing.

The market for pet food may make a relatively strong contribution to processors' total income, but no data are available to document the amount of coastal pelagic species landings that is ultimately sold in this product form.

VII. Summary and Analysis

The status of coastal pelagic species stocks appears to be good, although there is some concern about a decline in Pacific mackerel. The apparent return to normal water conditions may result in changing distribution of the various species. The Pacific sardine stock appears to be continuing to rebuild in recent years. Cooler waters may result in decreased availability of bonito, tunas, yellowtail, and barracuda, while anchovy and squid should return to nearshore waters in fishable concentrations.

The 1984 management regime will be somewhat less restrictive than 1983 for commercial fishing. The California Legislature passed emergency legislation to establish monthly mackerel quotas once the 1983-84 quota was reached early in 1984. California's limits on commercial harvesting of sardines has been modified to allow additional uses of incidental catches of the mackerel fishery. The Pacific Council proposal to replace the present anchovy size limit with mesh restrictions has been approved and the State of California has adopted similar regulations. This could reduce fishing costs, especially the losses associated with having to release schools with an abundance of relatively small anchovy. This may not be enough, however, to offset weak markets and scattered availability of anchovy stocks. Squid harvests are quite variable; although markets are strong, the industry has never been able to rely on squid for a major portion of its income, even at Monterey.

Recreational fishing is not expected to change substantially in 1984. Bait haulers may experience localized problems, but this is not unusual. Mackerel and bonito will likely continue to be among the larger components of total recreational catch in southern California.

There does not appear to have been much change in exvessel and wholesale markets for coastal pelagic species and products in the past year, and there is no evidence to indicate that there will be any significant changes in the next year.

Table 1: Landings (metric tons) and Ex-Vessel Value of Commercial Landings, 1978-83

	Anchovy		Mackerel		Bonito		Squid		Total	
	m.t.	\$	m.t.	\$	m.t.	\$	m.t.	\$	m.t.	\$
1978	10,339	513,200	42,041	5,097,000	3,139	1,384,000	16,964	3,432,000	72,482	10,426,200
1979	47,407	2,404,900	42,687	6,774,000	1,642	638,000	16,010	3,703,000	107,738	13,519,900
1980	43,698	2,697,100	49,509	9,823,000	5,883	2,516,000	11,431	2,241,000	110,521	17,277,100
1981	51,536	3,181,300	51,631	10,813,000	6,453	3,912,000	22,524	5,004,500	132,174	22,910,800
1982	42,050	2,124,400	53,115	10,506,000	2,325	1,087,000	16,240	3,589,800	113,730	17,307,200
1983	4,300	394,000	51,034	9,699,500	3,404	1,372,700	1,816	753,900	60,554	12,220,100
1978- 82 average	39,000	2,184,100	47,800	8,602,400	3,900	1,907,400	16,600	3,594,000	107,300	16,287,900

Sources

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